

U.S. Patent Application No. 09/630,121
Request for Reconsideration dated October 13, 2004
Reply to Office Action of July 15, 2004

REMARKS/ARGUMENTS

Reconsideration and continued examination of the above-identified application are respectfully requested.

At the bottom of page 2 of the Office Action, the Examiner rejects claims 7-21, 31-33, 37-40, and 42-54 under 35 U.S.C. §103(a) as being unpatentable over Nelson (U.S. Patent No. 6,324,809 B1), in view of Nishibori '138 (U.S. Patent No. 5,869,138), Graham (U.S. Patent No. 4,849,768), and further in view of Andres (U.S. Patent No. 5,553,427). With respect to Nelson, Nishibori '138, and Andres, the Examiner, for the most part, repeats the arguments set forth in the Office Action dated October 20, 2003.

With respect to the applicants' previous argument that the references do not teach or suggest a digitally printed design on the top surface of the plank, the Examiner states that Graham describes the use of a digital printing system to form a realistic wood grain appearance. Thus, the Examiner concludes that it would have been obvious to one of ordinary skill in the art to print directly on the plank of Nelson to provide a realistic wood grain appearance and to save the expense of constructing an overlay. For the following reasons, this rejection is respectfully traversed.

Claim 31 recites a thermoplastic plank having a core comprising at least one thermoplastic material, a digital printed design directly on the top surface of the plank, and at least one protective coating on top of the digital printed design. Claim 47 recites a floor covering forming a floating surface, wherein the floor covering has a plurality of thermoplastic planks, and each thermoplastic plank has a core comprising at least one thermoplastic material, a digital printed design on the top surface of the core, and a protective layer affixed to the top surface of the digital printed design. Claim 51 recites a plank as in claim 31, and further recites that no backing layer is located adjacent

U.S. Patent Application No. 09/630,121
Request for Reconsideration dated October 13, 2004
Reply to Office Action of July 15, 2004

to the bottom surface of the core. Claim 53 recites a plank as in claim 31, and further recites that at least the bottom surface of the core is thermally treated.

First, Nelson relates to a core for use in laminate floorings, which does not include a digital printed design on the top surface of the core, as recited in claims 31, 47, 51, and 53 of the present application. Nelson requires a laminate on the top and on the bottom of the core. Nelson also describes the use of a decorative laminate on top of a core. Nelson does not teach or suggest a protective layer affixed to the top surface of the printed layer and does not teach or suggest a digital printed layer that is printed on the top surface of the core.

It is important for the Examiner to appreciate that a laminate on the top or the bottom of the core is not the same or equivalent to having a digital printed design on the top surface of the core. Furthermore, contrary to the Examiner's assertions, a backing layer adjacent to the bottom surface of the core exists in Nelson. Nelson is directed to an article for use as a surface covering, wherein the article has a central core and a decorative layer on both the upper and lower surfaces of the core. The teachings of a reference must be considered as a whole. Nelson describes and exemplifies, in the specification and figures, the use of two decorative layers, one on the top and one on the bottom of the core. Thus, Nelson as a whole requires the use of two decorative layers. The claims of Nelson even show the necessity of having a surfacing material on both the upper surface and the lower surface, for example, claims 2, 3, 5, and 6 of Nelson essentially explain the language set forth in Nelson, at column 2, lines 51-65. It is clear that the upper and lower decorative layers must be present, and they can be the same or different. The figures of Nelson further show the necessity of having an upper planar decorative surface and a lower decorative surface. Each of the figures shows these decorative surfaces. Even the abstract of Nelson shows

U.S. Patent Application No. 09/630,121
Request for Reconsideration dated October 13, 2004
Reply to Office Action of July 15, 2004

the necessity of having the upper planar decorative surface and a lower planar decorative surface. Clearly, one skilled in the art, when reading Nelson would find only a teaching and only a suggestion of a surface covering with a decorative surface located on both the upper surface and the lower surface of the central core. No other options are taught or suggested in Nelson. The language specifically relied upon by the Examiner merely states that the upper surface and lower surface can have different decorative layers or the same decorative layers. However, there is no language in column 2 of Nelson that states that the decorative surface on the lower surface of the central core is optional. The need for having a decorative surface on the lower surface of the central core is clearly mandatory in all embodiments of Nelson. Furthermore, the decorative surface of Nelson is not a digital printed design.

Additionally, it is well known to one of ordinary skill in the art to place a backing layer on a core to reduce curl and/or warping of a product such as a plank. It is also well known in the art that products made without a backing layer on the bottom layer surface of the core demonstrate an unacceptable curl or warp. (See U.S. Patent Nos. 6,589,379; 6,460,306; and 6,103,044). Thus, one of ordinary skill in the art would understand Nelson as showing the need to use a backing layer to reduce curl or warp, as known in the art. Further, Nelson does not teach or suggest thermal treatment of the core. Contrary to the Examiner's assertions, Nelson does not implicitly or explicitly state that no cupping of the planks described therein occurs. Furthermore, some amount of cupping occurs, particularly at low humidity, when a flooring product does not have a backing. Therefore, the burden is on the Examiner to show where or how Nelson teaches an absence of cupping. Without satisfying this burden, this rejection cannot stand.

Second, Nishibori '138 relates to a method for forming a pattern on a synthetic wood board.

U.S. Patent Application No. 09/630,121
Request for Reconsideration dated October 13, 2004
Reply to Office Action of July 15, 2004

It is important for the Examiner to appreciate that the cores of Nelson and Nishibori '138 are different from one another. The Examiner cannot simply substitute different cores and expect the same outcome. According to columns 7 and 8 of Nishibori '138, wood grain patterns are directly printed by role print or flexographic printing on the surface on which a blurred wooden grain pattern is formed by the sanding process. Furthermore, according to column 8, lines 20-25, a transparent paint, such as clear lacquer or matting agent, is coated on the printed surface of the wooden grain pattern on the synthetic wood board and dried. According to Nishibori '138, the finishing coat can be aminoalukid, lacquer, polyester, polyurethane, or the like. Nelson does not provide any option to remove the laminate layer and one cannot simply substitute Nishibori '138 for Nelson's layer. The two structures are different. Even if one skilled in the art would substitute the laminated core of Nelson with the role print or flexographic printing of Nishibori '138, at best, the combination of the two references would produce wood grain patterns printed by role print or flexographic printing on both the upper surface and the lower surface of the central core. The combination of Nelson and Nishibori '138 still would not teach or suggest a digital printed design on the top surface of the core as recited in claims 31, 37, 51, and 53 of the present application. Digital printing is quite different from role or flexographic printing. Digital printing is non-contacting and more detailed.

Third, Andres relates to a completely different design from the flooring of the claimed invention. Andres is directed to a plastic extrusion that does not have a base layer. Also, Andres is not directed to forming a decorative print on a surface. Furthermore, the extrusion of Andres is fixed to a subfloor and is not a floating surface as set forth in claim 47 of the present application. Moreover, Andres does not cure the deficiencies of Nelson or Nishibori '138 with regard to thermal

U.S. Patent Application No. 09/630,121
Request for Reconsideration dated October 13, 2004
Reply to Office Action of July 15, 2004

treatment of the core or a digital printed design directly on the top surface of the plank.

Fourth, Graham relates to controlling a fluid jet applicator to generate print patterns that simulate natural wood grains, watered silk, and other related non-repetitive patterns. The fluid jet applicator of Graham appears to generate a digitally printed design on the top surface of a material. Graham does not specifically teach that a digitally printed design is printed on a thermoplastic plank. At best, Graham, at column 6, states that the patterns may be applied to a range of substrates and, for example, such patterns may be applied to paper, fabrics, doors, paneling flooring materials, and ceiling tiles.

As stated above, Nelson requires a laminate on both the top and the bottom of the core. Nelson does not teach or suggest a protective layer affixed to the top surface of the printed layer and, more specifically, does not teach or suggest a digitally printed layer that is printed on the top surface of the core. Given that Nelson requires a laminate on the top and the bottom surface of the core, one skilled in the art would not be motivated to substitute the laminate of Nelson with a digitally printed design. Additionally, it is important for the Examiner to appreciate that removing the backing layer of Nelson, or substituting the bottom laminate layer of Nelson with a digitally printed design, would cause the plank of Nelson to curl and warp. Accordingly, one skilled in the art would not be motivated to combine the references to provide the claimed invention. The Examiner is improperly using hindsight to construct the invention by combining only certain aspects of four references and ignoring the teachings of each reference as a whole. This picking and choosing is not a proper obviousness rejection. Thus, Nelson, in view of Nishibori '138, Andres, and Graham, does not teach or suggest the subject matter of claims 31, 47, 51, 53, and claims dependent therefrom. Accordingly, the rejection under 35 U.S.C. §103(a) should be withdrawn.

U.S. Patent Application No. 09/630,121
Request for Reconsideration dated October 13, 2004
Reply to Office Action of July 15, 2004

At page 5 of the Office Action, the Examiner rejects claims 31, 47, 51, and 53 under 35 U.S.C. §103(a) as being unpatentable over Nishibori '138, in view of Graham. With respect to Nishibori '138, the Examiner, for the most part, repeats the reasons for rejecting the claimed invention over Nishibori '138 from the Office Action dated October 20, 2003. The Examiner then asserts that Graham describes the use of a digital printing system to form a realistic wood grain pattern. Therefore, the Examiner concludes that it would have been obvious to one of ordinary skill in the art to have used a digital wood grain printed pattern on the plank of Nishibori '138 in view of Graham in order to have a more realistic pattern. For the following reasons, this rejection is respectfully traversed.

With respect to claim 31, Nishibori '138 requires grinding the entire surface of one side of the synthetic wood board in one direction to remove a surface skin layer to expose the cellulose crushed material and to create a number of randomly spaced and discontinuous wound stripes, wherein the wound stripes form a number of recesses. The color is then applied to the recesses, wherein the colorant permeates into a depth within the recess of the wound stripes and forms a recess pigment layer. Furthermore, Nishibori '138, at column 8, states that when the thermoplastic resin material is polypropylene or polyethylene, and the wood meal content is 40 wt% or less, sanding cannot be conducted, and if the wood meal content is 30 wt% or less, the colorant runs away and thus, the plank would be difficult to color.

Graham, at columns 3 and 4, states that the substrate is a non-wicking substrate (without recess). The recess in a plank can distort the desired uniformity of the planks and would make digital printing difficult, if not impossible. Therefore, by reading Nishibori '138, one skilled in the art would not be motivated to use the digital printing of Graham on the recessed planks of Nishibori

U.S. Patent Application No. 09/630,121
Request for Reconsideration dated October 13, 2004
Reply to Office Action of July 15, 2004

'138. Furthermore, as Nishibori '138 specifically states, the colorant in planks having wood meal content of 30 wt% or less would run away. Thus, one skilled in the art would not be motivated to use digital coloring on planks that have wood meal content of 30 wt% or less, and consequently Nishibori '138 and Graham are not combinable to make the claimed invention, without the improper use of hindsight.

With respect to claim 47, in addition to the arguments set forth above, the combination of Nishibori '138 and Graham does not teach or suggest a floating surface. With respect to claim 51, in addition to the arguments set forth above, by reading the references, one skilled in the art would conclude that to avoid curling or warping, the planks of the references include a backing layer.

Furthermore, with respect to claim 53, in addition to the arguments set forth above, the wood board of Nishibori '138 or Graham is not thermally treated. Accordingly, this rejection should be withdrawn.

At page 6 of the Office Action, the Examiner rejects claim 53 under 35 U.S.C. 103(a) as being unpatentable over Nishibori '138, in view of Nishibori '900 (U.S. Patent No. 4,610,900), and further in view of Graham. With respect to Nishibori '138 and Nishibori '900, the Examiner provides the same reasoning for rejecting claim 53 as in the previous Office Action dated October 20, 2003. Additionally, the Examiner states that it would have been obvious to use a digital pattern as the wood grain of Nishibori '138 in view of Nishibori '900 in order to have a more realistic pattern. For the following reasons, this rejection is respectfully traversed.

Claim 53 of the present application relates to a thermoplastic plank including a core having at least one thermoplastic material, wherein the core has a top surface, a bottom surface, and opposing sides. Additionally, claim 53 recites that the thermoplastic plank also includes a digital

U.S. Patent Application No. 09/630,121
Request for Reconsideration dated October 13, 2004
Reply to Office Action of July 15, 2004

printed design on the top surface of the core, wherein the digital printed design has a top surface and a bottom surface. Furthermore, according to claim 53, a protective layer is affixed to the top surface of the digital printed design, wherein at least the bottom surface of the core is thermally treated.

As stated above, Nishibori '138 does not teach or suggest a digital printed design on the top surface of the core. Moreover, for the reasons set forth above, one skilled in the art would not substitute the printing method described in Nishibori '138 with the digital printing method described in Graham. Similarly, Nishibori '900 does not teach or suggest a digital printed design on the top surface of the core. Also, Nishibori '900 relates to a method of eliminating the residual stress by subjecting the molded products containing a cellulose-base aggregate, especially the resinous skin layer thereof, to re-heating, curling, and sanding or jetting treatments under predetermined conditions. As set forth in Nishibori '900, the heating that the Examiner refers to is a heat treatment to exude the concentrated resin to form a skin layer so that the skin layer may be removed by various techniques such as sanding or jetting. This is significantly different from the at least bottom surface of the core of claim 53 being thermally treated. In addition, one has to consider the various references relied upon by the Examiner wherein each of the references is very different with respect to the preparation of the product. Nishibori '900 uses heat and then removes a skin layer. This certainly is not the type of material that Graham is referring to. Nishibori '900 does not teach or suggest a protective layer located on the top surface of a digital printed design. In fact, Nishibori '900 does not teach or suggest a digital printed design at all. Therefore, one skilled in the art, by reading Nishibori '138 in view of Nishibori '900 and Graham, would, at best, heat the synthetic wood board without the application of a digital printed design pattern on the synthetic wood board.

U.S. Patent Application No. 09/630,121
Request for Reconsideration dated October 13, 2004
Reply to Office Action of July 15, 2004

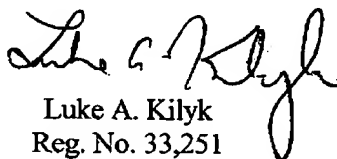
Accordingly, this rejection should be withdrawn.

CONCLUSION

In view of the foregoing remarks, the applicants respectfully request the reconsideration of this application and the timely allowance of the pending claims.

If there are any other fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 50-0925. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,


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